

diameter and 0.038 inches to 0.035 inches inner diameter, which results in a variable thickness of the component such that the wall thickness (dimension X) tapers from beginning to end from 0.028 inches to 0.018 inches. Figure 2C depicts component 103, or the second tapered section (“Elephant trunk”), in cross-section. 103 tapers from 4 french ( 0.053 inches) to 3 french ( 0.039 inches) outer diameter and 0.035 inches to 0.018 inches in inner diameter, which results in a variable thickness of the component such that the wall thickness (dimension Y) increases from beginning to end from 0.018 inches to 0.021 inches.

## **CLAIMS**

### **I Claim:**

- 1.) A catheter for use in pelvic angiographic procedures comprising:
  - a primary curve;
  - a first tapered section;
  - a secondary curve;
  - and a second tapered section.
- 2.) The catheter of claim 1 formed from a group of plastics that includes polyurethane, polyethylene and polyether block amide copolymer.
- 3.) The catheter of claim 1, wherein the second tapered section tapers from an inner diameter of 0.035 inches to 0.018 inches, and wherein the outer diameter tapers from 4 french to 3 french.
- 4.) The catheter of claim 1, wherein the overall length of the catheter is between 76 cm and 87 cm.

- 5.) The catheter of claim 1, wherein the length from the primary curve to the secondary curve is between 14 cm and 17 cm.
- 6.) The catheter of claim 1, wherein the length from the secondary curve to the catheter tip is between 3 cm and 8 cm.
- 7.) The catheter of claim 1, wherein the start of the first tapered section begins between 2.0 cm and 3.0 cm beyond the primary curve, and wherein the taper is from an inner diameter of 0.038 inches to 0.035 inches and an outer diameter of 5 french to 4 french.
- 8.) The catheter of claim 1, wherein the start of the second tapered section begins between 0.5 cm and 1.5 cm from the secondary curve.
- 9.) The catheter of claim 1, wherein the overall length of the second tapered section is between 2.0 cm and 8.0 cm.
- 10.) The catheter of claim 1, wherein the radius of the primary curve is between 1.0 cm and 1.2 cm, and wherein the angle of said primary curve is within a range between 180 and 420 degrees.
- 11.) The catheter of claim 10, wherein the angle of said primary curve is 360 degrees.
- 12.) The catheter of claim 1, wherein the angle of the secondary curve is between 90 and 100 degrees from the shaft.
- 13.) The catheter of claim 1, wherein the catheter is formed from a braided material.
- 14.) The catheter of claim 13, wherein the braided material is from a group that includes stainless steel.
- 15.) The catheter of claim 1, wherein the catheter is impregnated with a radioopaque material.
- 16.) The catheter of claim 15, wherein the radioopaque material is from a group that

includes tungsten.

- 17.) The catheter of claim 1, wherein the first tapered portion is made from a group of materials that include a polyether block amide copolymer.
- 18.) The catheter of claim 1, wherein a hydrophilic coating is employed.
- 19.) The catheter of claim 18, wherein the hydrophilic coating coats at least a portion of the catheter from the origin of the first tapered section to the tip.
- 20.) The catheter of claim 1, including a hub at its origin.
- 21.) The catheter of claim 20, wherein the length from the origin of the hub to the primary curve is between 59 cm and 62 cm.
- 22.) The catheter of claim 20, wherein the hub is 1.0 to 2.0 cm in length and has an inner luminal diameter of 0.038 inches.
- 23.) The catheter of claim 20, wherein the hub consists of polyurethane.
- 24.) The catheter of claim 20, wherein the hub has an inner luminal diameter of 0.038 inches.
- 25.) The catheter of claim 1 or 20, wherein a straightener extends on the outside of the catheter over a length between 2.0 cm and 3.0 cm.
- 26.) The catheter of claim 25, wherein the straightener is made of polyurethane.
- 27.) The catheter of claim 25, wherein the straightener is removeable.
- 28.) The catheter of claim 1 or 20, wherein the second tapered section is formed from a flexible material.
- 29.) The catheter of claim 1 or 20, wherein the second tapered section is formed from an elastic material.
- 30.) The catheter of claim 1 or 20, wherein the second tapered section is formed from a

soft material.

31.) The catheter of claim 1 or 20, wherein the second tapered section is formed from a germ-retarding material.

32.) The catheter of claim 1 or 20, wherein the second tapered section has at least one curve.

33.) The catheter of claim 1 or 20, wherein the thickness of the walls of the second tapered section changes along its length.

34.) The catheter of claim 1 or 20, wherein the length of the second tapered section is at least 0.5 cm.

35.) The catheter of claim 1 or 20, wherein the length of the second tapered section is variable.

36.) The catheter of claim 1 or 20, wherein the second tapered section is detachable.

37.) The catheter of claim 1 or 20, wherein the second tapered section is formed separately from the rest of the catheter.

38.) The catheter of claim 1 or 20, wherein the second tapered section is formed separately from the rest of the catheter and includes attachment means for removably attaching to the secondary curve.

39.) A catheter including a tapered end section.

40.) The catheter of claim 39, wherein the tapered end section is formed from a flexible material.

41.) The catheter of claim 39, wherein the tapered end section is formed from an elastic material.

42.) The catheter of claim 39, wherein the tapered end section is formed from a soft

material.

- 43.) The catheter of claim 39, wherein the tapered end section is formed from a germ-retarding material.
- 44.) The catheter of claim 39, wherein the tapered end section is formed from a braided material.
- 45.) The catheter of claim 39, wherein the tapered end section has at least one curve.
- 46.) The catheter of claim 39, wherein the thickness of the walls of the tapered end section changes along its length.
- 47.) The catheter of claim 39, wherein the length of the tapered end section is at least 0.5 cm.
- 48.) The catheter of claim 39, wherein the length of the tapered end section is variable.
- 49.) The catheter of claim 39, wherein the tapered end section is detachable.
- 50.) The catheter of claim 39, wherein the tapered end section includes attachment means for removably attaching to a tip of the catheter.
- 51.) The catheter of claim 39, wherein the tapered end section tapers from an inner diameter of 0.035 inches to 0.018 inches, and wherein the outer diameter tapers from 4 french to 3 french.
- 52.) A tapered end section for a catheter.
- 53.) The catheter of claim 52, wherein the tapered end section is formed from a flexible material.
- 54.) The catheter of claim 52, wherein the tapered end section is formed from an elastic material.
- 55.) The catheter of claim 52, wherein the tapered end section is formed from a soft

material.

56.) The catheter of claim 52, wherein the tapered end section is formed from a germ-retarding material.

57.) The catheter of claim 52, wherein the tapered end section is formed from a braided material.

58.) The catheter of claim 52, wherein the tapered end section has at least one curve.

59.) The catheter of claim 52, wherein the thickness of the walls of the tapered end section changes along its length.

60.) The catheter of claim 52, wherein the length of the tapered end section is at least 0.5 cm.

61.) The catheter of claim 52, wherein the length of the tapered end section is variable.

62.) The catheter of claim 52, wherein the tapered end section is detachable.

63.) The catheter of claim 52, wherein the tapered end section includes attachment means for removably attaching to a tip of the catheter.

64.) The catheter of claim 52, wherein the tapered end section tapers from an inner diameter of 0.035 inches to 0.018 inches, and wherein the outer diameter tapers from 4 french to 3 french.

## ABSTRACT

An improved angiographic catheter that allows selective catheterization of the bilateral pelvic arteries via a unilateral single common femoral arterial entry site for the purpose of introducing radioopaque iodinated contrast solutions for both diagnostic and therapeutic